PROTECTIVE DENTAL SHIELD

BACKGROUND OF THE INVENTION

This invention relates generally to devices used to protect against injuries to soft tissues such as cheeks, tongue and lips caused by accidental bites in anesthetized patients, and more particularly to a flexible dental shield for placement between the teeth so as to form a barrier around the teeth to isolate the teeth from the soft tissue areas.

Dentists, medical doctors and care providers often administer anesthetics (e.g., Novocaine) to cause a complete or partial loss of physical sensation, muscle function and pain before beginning oral treatments or surgery on their patients. Because areas of the lips, cheeks and tongue are often numbed and anesthetized along with the teeth, patients can, and often do, accidentally bite these otherwise sensitive soft tissue areas causing discomfort, bleeding, swelling and painful sores that may take several weeks to heal. In some cases, scarring of the bitten tissue may also occur. These problems are of great concern to patients and doctors, especially in cases involving the treatment of children who generally have a lower tolerance for pain than adults and also may be more prone to accidental biting of the numbed tissues.

In an attempt to prevent accidental bites and the resulting trauma in their patients, dentists or other medical practitioners often place a cotton roll or gauze padding inside the mouth on the side where the patient is numbed, and ask the patient to bite on the cotton or gauze and refrain from talking, chewing or engaging in other activities that may cause the patient to bite herself. The cotton roll or gauze padding is generally left inside the patient's mouth after the oral procedure until the numbness associated with the anesthetic wears off. While this method can provide some degree of prevention, it often provides an inadequate protection against accidental biting of soft tissue areas, and can be very uncomfortable for the patient.

Other oral devices have been designed and attempted in an effort to prevent accidental bite trauma and injury in patients. Some of these devices are not directed to patients with temporary numbness in the mouth area, and are of a more permanent nature such as those using arch wires in combination with hard oral acrylic devices designed for comatose patients or those with a long-term disability. Others utilize hard rubber or plastic mouth pieces, or flexible or inflexible bite splints over the occlusal surfaces of the teeth. In addition to their relative high cost and not lending themselves to be used readily and quickly without the need for special fitting, the non-flexible nature of such devices may cause damage to the surfaces of the teeth, soft tissues or filling material used to restore the teeth, and the wire or rigid plastic components may break away or cause the filling material to break away and be accidentally swallowed by the patient. Still other devices have been attempted which use flexible materials.

However, such devices have certain shortcomings in that some require the use of impressions or molds to fit the device for each patient, some require the wearer (typically an athlete) to place a device that covers the entire mouth area, and some only protect the occlusal surfaces of the teeth without providing a barrier around the side surfaces of the teeth, which increases the danger and possibility of accidental biting of soft tissue areas. Also, some of the existing designs are not particularly hygienic in that the portion of the device that is eventually placed inside the mouth must be touched or held prior to positioning it in the patient's mouth.

Thus, there is a need for a dental protective shield that can be manufactured inexpensively, is flexible and resilient so as to be comfortable, safe and adaptable to fit the maximum number of patients with a minimum number of sizes and shapes, provides a barrier around the occlusal and side surfaces of the upper and lower teeth so as to provide an effective protection against accidental biting of soft tissue surfaces, allows the wearer to breath and talk with minimal disturbance, enables the placement and removal of the device into and out of the patient's mouth in a hygienic and simple manner, and is disposable so as to eliminate cross-contamination problems. The present invention fulfills these needs.

SUMMARY OF THE INVENTION

The present invention resides in a dental protective shield made from a resilient and flexible material which forms a biting surface placed between the patient's upper and lower teeth with two side walls projecting from the two lateral side edges of the biting surface to form a barrier around the side surfaces of the patient's upper and lower teeth and an extra-oral portion.

More specifically, the dental protective shield of the present invention includes a biting portion formed from a planar piece of resilient material. Two side walls made from the same resilient material project from the two laterally spaced side edges of the biting portion above and below the planar surface of the biting segment. The outer extremities of the side walls are slightly angled or curved so as to provide space for the placement of the side walls against the gum tissue for a comfortable and secure fit. The biting segment and the side walls are shaped to follow the general contour and curvature of the teeth in the specific area of the mouth that has been anesthetized.

When the patient places the protective shield between the upper and lower teeth, the biting portion forms a barrier between the occlusal surfaces of the teeth, and the side walls form barriers between the side surfaces of the upper and lower teeth and the soft tissue areas of the patient's mouth such as the cheeks, lips and the tongue. In this manner, the protective shield of the invention essentially surrounds the occlusal and side surfaces of the upper and lower teeth to prevent accidental bites caused by contact between the teeth and the soft tissue areas.

In accordance with another aspect of the invention, an extra-oral portion is provided to allow the dental protective shield to be placed inside the patient's mouth in a hygienic fashion and to prevent accidental swallowing of the protective shield. The extra-oral portion is made from the same resilient material as the biting portion and the side walls. In the youth/adult version of the invention, the extra-oral portion extends from the biting portion, and is long enough to slightly protrude from the patient's mouth when the protective shield in place. Also, in the youth/adult version, the extra-oral portion may be provided with a hole to accept dental floss or other similar material therethrough so that in case the protective shield is accidentally swallowed by the patient, the dental floss can be used to retrieve and pull the protective shield from the patient's mouth. In the child version of the protective dental shield of the invention, the extra-oral portion extends from one of the side walls so as to take the form of a side flap outside the child's mouth to prevent accidental swallowing of the dental shield. The side flap can be flossed at the corner to further help prevent accidental swallowing of the dental shield.

Once the protective shield is placed inside the patient's mouth in the correct position and side, the patient bites on